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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,107	12/10/2003	Yin-Jao Luo	1291053	9188

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PRO-TECHTOR INTERNATIONAL SERVICES
20775 Norada Court
Saratoga, CA 95070-3018

EXAMINER	
NGUYEN, TRAN N	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 06/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/733,107	LUO, YIN-JAO	
	Examiner	Art Unit	
	Tran N. Nguyen	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1 and 4* is/are rejected.

7)☐ Claim(s) *2 and 3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The disclosure is objected to because of the following informalities:

The *Brief Description of the Drawings* section **should be placed prior to** the *Detailed Description of The Preferred Embodiment section*. The applicant is requested to comply with the format set forth by the USPTO.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. **Claim 1** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, "that [angle] has a the closest value smaller than 360/P degrees, with P being the number of said at least two main magnetic poles" is unclear because of the following:
(i) it is unclear whether this is an electrical angle or mechanical angle that is being closest value smaller than 360/P degrees;
(ii) "at least two main magnetic poles" is understood as **positively there are two main magnetic poles** *and possible there are more than two magnetic poles*. The possibility of more than two main magnetic poles is **not** a positive recitation;
(iii) the term "***a the***" in "***a the closest number***" is incorrect.

In light of the spec, "at least two magnetic poles" is understood as *a plurality of main poles* and "P being the number of said at least two main magnetic poles" is understood as *P being the number of said plurality of main magnetic poles*.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claim 1** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nishiyama et al (US 6,369,480)** in view of level of ordinary skills of a worker in the art.

Nishiyama discloses permanent magnet rotor assembly for a brushless electric motor, comprising:

a plurality of main magnetic poles (13a fig 1), disposed on a periphery of a rotor, each of said at least two main magnetic poles having an opening angle (104) (i.e., claimed angle A) which covers an angle of a stator segment and angle A has a the closest value smaller than 360/P degrees, with P being the number of said plurality of main magnetic poles, wherein

each of the plural main magnetic poles having a central section (shown in fig 1, but unnumbered) and two end sections (shown in fig 1, but unnumbered) with central section having an opening angle (105) (i.e., claimed angle A1) which covers said angle of each of said stator sections, and central section angle (105) (i.e., claimed A1) being smaller than said opening angle (104) (i.e., claimed angle A).

Nishiyama substantially discloses the claimed invention, except for the limitations of the rotor main magnetic pole angle covers N/2 times an angle of a stator segment, with N being an odd number that is greater than or equal to 3.

Those skills in the art would realize that Nishiyama does disclose that the rotor main magnetic pole angle covers an angle of the stator segment portion. This is the general condition of the rotor's main magnetic angle with respect to the stator segment. Thus, even though Nishiyama's rotor's main magnetic angle is not expressed in term of N/2 times the stator segment angle, wherein N is odd number. Those skilled in the art would realize that it would have been obvious to an artisan to figure the optimum workable range thereof based on the number of rotor magnetic poles in corresponding to the number of stator poles. It is preferred to configure the angle of the rotor main magnetic poles with respect to the angle of the stator segment because this would enhance the magnetic flux therebetween to reduce eddy current and magnetic flux leakage therein.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the Nishiyama rotor so that the rotor main magnetic poles having an opening angle A which covers N/2 times an angle of a stator segment, with N being an odd number that is greater than or equal to 3, as in the claimed invention. Doing so would enhance the magnetic flux therebetween to reduce eddy current and magnetic flux leakage therein and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. ***In re Aller, 105 USPQ 233.***

5. **Claim 1** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Matsunobu et al (US 6,133,662)** in view of level of ordinary skills of a worker in the art.

Matsunobu discloses permanent magnet rotor assembly for a brushless electric motor, comprising:

a plurality of main magnetic poles (8 fig 1), disposed on a periphery of a rotor, each of said at least two main magnetic poles having an opening angle (Φ) (i.e., claimed angle A) which covers an angle of a stator segment and angle A has a the closest value smaller than 360/P degrees, with P being the number of said plurality of main magnetic poles, wherein

each of the plural main magnetic poles having a central section (shown in fig 1, but unnumbered) and two end sections (shown in fig 1, but unnumbered) with central section having an opening angle (θ) (i.e., claimed angle A1) which covers said angle of each of said stator

sections, and central section angle (θ) (i.e., claimed A1) being smaller than said opening angle (Φ) (i.e., claimed angle A).

Matsunobu substantially discloses the claimed invention, except for the limitations of the rotor main magnetic pole angle covers N/2 times an angle of a stator segment, with N being an odd number that is greater than or equal to 3.

Those skills in the art would realize that Matsunobu does disclose that the rotor main magnetic pole angle covers an angle of the stator segment portion. This is the general condition of the rotor's main magnetic angle with respect to the stator segment. Thus, even though Matsunobu's rotor's main magnetic angle is not expressed in term of N/2 times the stator segment angle, wherein N is odd number. Those skilled in the art would realize that it would have been obvious to an artisan to figure the optimum workable range thereof based on the number of rotor magnetic poles in corresponding to the number of stator poles. It is preferred to configure the angle of the rotor main magnetic poles with respect to the angle of the stator segment because this would enhance the magnetic flux therebetween to reduce eddy current and magnetic flux leakage therein.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor so that the rotor main magnetic poles having an opening angle A which covers N/2 times an angle of a stator segment, with N being an odd number that is greater than or equal to 3, as in the claimed invention. Doing so would enhance the magnetic flux therebetween to reduce eddy current and magnetic flux leakage therein and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. ***In re Aller, 105 USPQ 233.***

6. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiyama or Matsunobu in view of skills in the art, as applied in the rejection against the base claim, and further in view of applicant's admitted prior art **(AAPA) Fig. 7**.

The combination of **Nishiyama or Matsunobu in view of skills in the art** substantially discloses the claimed invention, except for the added limitations of the main magnetic pole's outer rims oriented parallel to outer edges of the magnet thereof.

AAPA Fig. 7, however, teaches these features for the purpose of decreasing the magnetic flux leakage between the stator and the rotor at the area between two adjacent rotor magnetic poles. Thus it would have been obvious to an artisan to modify the prior-art rotor core by configuring the rotor core having each individual main magnetic poles, wherein the main magnetic pole's outer rims oriented parallel to outer edges of the magnet thereof, as taught by AAPA Fig 7 for reducing the magnetic flux leakage between the stator and the rotor resulting in reducing eddy current and cogging torque.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor so that the rotor main magnetic poles having outer rims oriented parallel to outer edges of the magnet thereof, as taught by AAPA Fig. 7. Doing so would reduce magnetic flux leakage resulting in decreasing eddy current and cogging torque.

Allowable Subject Matter

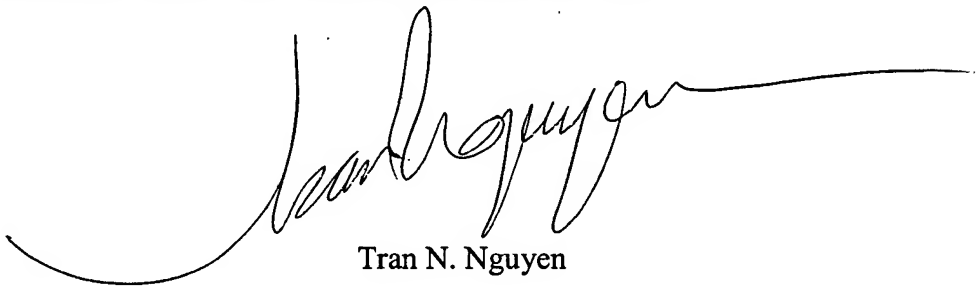
Claims 2-3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N. Nguyen whose telephone number is (571) 272-2030. The examiner can normally be reached on M-F 7:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tran N. Nguyen
Primary Examiner
Art Unit 2834